

NAME ..... DATE .....

INDEX NO. .... SIGNATURE .....

**231/3**  
**BIOLOGY**  
**PAPER 3**  
**(PRACTICAL)**  
**TIME: 1¾ HOURS.**

## **MAKINDU DISTRICT INTER – SECONDARY SCHOOLS EXAMINATION**

*Kenya Certificate of Secondary Education*

**231/3**  
**BIOLOGY**  
**PAPER 3**  
**(PRACTICAL)**  
**JULY/AUGUST 2014**  
**TIME: 1¾ HOURS.**

### **INSTRUCTIONS TO CANDIDATES**

- Answer **all** the questions.
- You are required to spend the first 15 minutes of the 1¾ hours allowed for the paper reading the whole paper carefully before commencing your work.
- Answers must be written in the spaces provided in the question paper.
- Additional pages must not be inserted.
- Candidates may be penalized for recording irrelevant information and for incorrect spellings.
- This paper consists of 5 printed pages. Candidates should check to ensure that all pages are printed as indicated and no questions are missing

### **FOR EXAMINER'S USE ONLY**

<b>Questions</b>	<b>Maximum score</b>	<b>Candidate's score</b>
Question 1	12	
Question 2	14	
Question 3	14	
<b>Total score</b>	<b>40</b>	

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231/3  
Biology  
Paper 3 (practical)

1. You are provided with solution labeled Q, Benedict's solution, DCPIP reagent, dilute sodium hydroxide and 1% copper (II) sulphate; Using

a) 2ml in a test-tube in each case, test for the food substances in solution Q (10mks)

Test	Procedure	Observation	Conclusion
Burette Test	(1mk)	(1mk)	(1mk)
DCPIP test	(1mk)	(1mk)	(1mk)
Benedicts test	(1mk)	(1mk)	(1mk)

b) Name the deficiency disease in humans that would result from lack of nutrients contained in solution Q (1mark)

.....  
.....

c) In the study of evolution researchers have observed that vertebrate's animals have the type of structures shown below.

**SEE PHOTOGRAPHS ATTACHED**

i. Which theory of evolution do these structures support? (1mark)

.....  
.....

ii. On the diagrams identify the basic similarities observed. (2marks)

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.....  
.....  
.....

iii. Explain clearly why this structure justify evolution in animals (3marks)

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.....

2. The micrograph below shows stages in a type of cell-division that occurs in organisms.

**SEE PHOTOGRAPHS ATTACHED**

a) State the type of cell – division (1 mark)

.....  
.....

b) Identify the stages indicated by letter. (4marks)

V  
.....

X.  
.....

Y  
.....

Z  
.....

c) Name the type of cells in which the above process occurs.

.....  
.....  
.....

d) State two significance of this type of cell-division (2marks)

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.....

e) From the micrograph, suggest with reason(s) whether the cell-division shown occurred in plants or animals (2marks)

.....  
.....  
.....

f) Name one cellular activities that occurs in stage labeled W (1mark)

.....  
.....  
.....

3. Below are drawing of various organisms. Examine them

**SEE PHOTOGRAPHS ATTACHED**

a) i ) Name the phylum to which B belongs (1mark)

.....  
.....  
.....

(ii) Give three reasons for your answer in (a) (i) above (3marks)

.....  
.....  
.....  
.....  
.....

b) Name the class to which specimen B and E belong.

B

.....

E

.....

c) Give three differences between specimen B and E (3marks)

.....  
 .....  
 .....

d) Use the dichotomous key provided to identify the organism.

- 1. a) Jointed legs present..... go to 2
- b) jointed legs absent..... go to 7
- 2. a) Have 3 pairs of legs..... go to 3
- b) Have more than 3 pairs of legs..... go to 5
- 3. a) With wings..... go to 4
- b) Without wings..... Anoplura
- 4. a) Have one pair of wings..... Diptera
- b) Have two pairs of wings..... Hymenoptera
- 5. a) Have four pairs of legs..... Arachnida
- b) Have more than 10 pairs of legs..... go to 6
- 6. a) With one pair of legs per segment..... Chilopoda
- b) With two pairs of legs per body segment..... Diplopoda
- 7. a) With body enclosed in a shell..... Mollusca
- b) Body surface with spiny projections..... Echnodermata.

Identify steps followed to identify organism A, B, C, and E (5marks)

Specimen	Steps followed	Identity
A		
B		
D		
E		

**ANSWERS:**

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